

Notice of Allowability

Application No.

10/057,753

Examiner

Young J. Kim

Applicant(s)

BAVYKIN ET AL.

Art Unit

1637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the RCE received on 10/23/06 and Supplemental Amendment received on 12/05/06.
2. ☒ The allowed claim(s) is/are 1,2,4-9 and 12-18.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

YOUNG J. KIM
PRIMARY EXAMINER

Young J. Kim
Primary Examiner
Art Unit: 1637

12-17-06

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Ms. Michael Cherskov on December 13, 2006.

The application has been amended as follows:

Claims 19 and 20 have been canceled.

Following Amendments have been made to the claims:

1. A method for ~~protein-DNA crosslinking~~ labeling DNA molecules, the method comprising:
 - a) contacting DNA molecules with hydrogen peroxide and 1,10-phenanthroline-Cu(II) for a time and at a concentrations sufficient to produce DNA single strand scission and free-aldehyde moieties on either the 5' or 3' end of the molecules at the site of scission;
 - b) reacting the aldehyde moieties with amine to produce a condensation product; and
 - c) labeling the condensation product by crosslinking with a label such that 90 percent of the crosslinking occurs at the 5'-end or the 3'-end of the DNA molecules.

8. The method as recited in claim claim 1, wherein the step of contacting the ~~nucleic acid~~ DNA molecules with 1,10-phenanthroline-Cu(II) includes contacting the nucleic acid with a denaturing agent.

9. A method for ~~protein-DNA crosslinking~~ labeling DNA molecules, the method comprising:
- a) producing free radicals by reacting hydrogen peroxide with 1,10-phenanthroline-Cu(II)[[.]] ;
 - b) contacting the produced free radicals with DNA molecules to produce single stranded scission-free nucleic acid bases and aldehyde forms of ~~ribose~~ deoxyribose at either the 5' ends or 3' ends at the site of scission;
 - c) contacting the aldehyde forms with an amine to produce a condensation product;
 - d) reducing the condensation product; and
 - e) labeling the reduced condensation product by crosslinking with a label, such that 90 percent of the crosslinking occurs at the 5'-end or the 3'-end of the DNA molecules.

Examiner Comment

The support for the limitation, "90 percent of the crosslinking occurs at the 5'-end or the 3'-end of the DNA molecules," is found in the specification as originally filed.

Specifically, on page 8, beginning at line 1 of the instant specification, it is stated that radical mediated labeling results in the crosslinking of the fluorescent dye to the 5' end of the nucleic acid strand, wherein it is explicitly stated inventors found that OP-Cu-mediated protein-DNA crosslinking, the crosslinking occurs at the 5'-end or 3'-end of the DNA molecule in approximately 90% of the cross-linked complexes.

The term, "OP-Cu" according to the instant specification, beginning on page 5, line 14, is referring to 1,10-phenanthroline-Cu(II).

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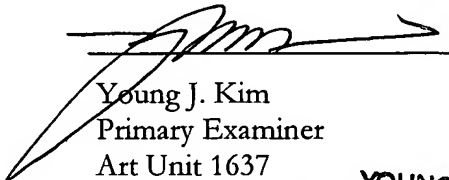
Thus, claim amendments are fully supported by the application as filed.

Inquiries

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Young J. Kim whose telephone number is (571) 272-0785. The Examiner is on flex-time schedule and can best be reached from 8:30 a.m. to 4:30 p.m (M-W and F). The Examiner can also be reached via e-mail to Young.Kim@uspto.gov. However, the office cannot guarantee security through the e-mail system nor should official papers be transmitted through this route.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Dr. Gary Benzion, can be reached at (571) 272-0782.

Papers related to this application may be submitted to Art Unit 1637 by facsimile transmission. The faxing of such papers must conform with the notice published in the Official Gazette, 1156 OG 61 (November 16, 1993) and 1157 OG 94 (December 28, 1993) (see 37 CFR 1.6(d)). NOTE: If applicant does submit a paper by FAX, the original copy should be retained by applicant or applicant's representative. NO DUPLICATE COPIES SHOULD BE SUBMITTED, so as to avoid the processing of duplicate papers in the Office. All official documents must be sent to the Official Tech Center Fax number: (571) 273-8300. For Unofficial documents, faxes can be sent directly to the Examiner at (571) 273-0785. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (571) 272-1600.


Young J. Kim
Primary Examiner
Art Unit 1637
12/14/2006

**YOUNG J. KIM
PRIMARY EXAMINER**

YJK